

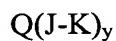
CLAIMS:

1. A composition, comprising:

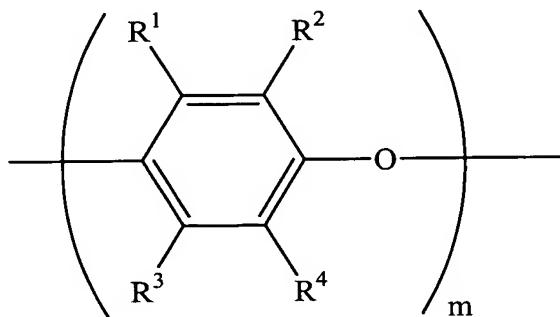
a functionalized poly(arylene ether); and

an olefin-alkyl (meth)acrylate copolymer.

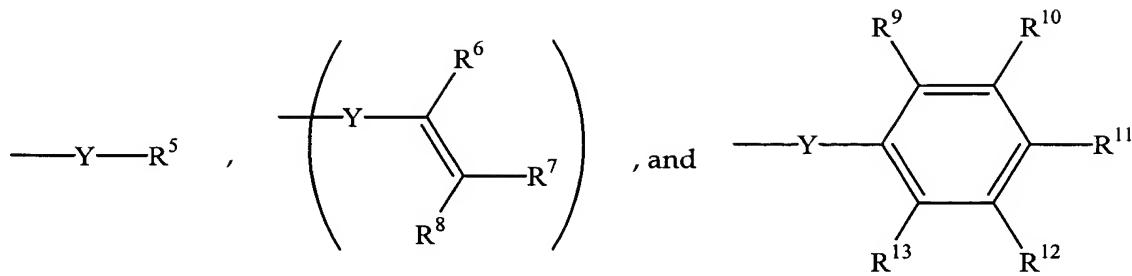
2. The composition of Claim 1, wherein the functionalized poly(arylene ether) is a capped poly(arylene ether) having the structure



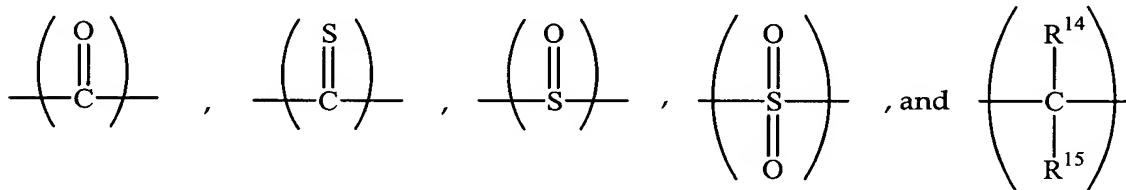
wherein Q is the residuum of a monohydric, dihydric, or polyhydric phenol; y is 1 to 100; J comprises repeating structural units having the formula



wherein R¹ and R³ are each independently selected from the group consisting of hydrogen, halogen, primary or secondary C₁-C₁₂ alkyl, C₂-C₁₂ alkenyl, C₂-C₁₂ alkynyl, C₁-C₁₂ aminoalkyl, C₁-C₁₂ hydroxyalkyl, phenyl, C₁-C₁₂ haloalkyl, C₁-C₁₂ hydrocarbonoxy, and C₂-C₁₂ halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; R² and R⁴ are each independently selected from the group consisting of halogen, primary or secondary C₁-C₁₂ alkyl, C₂-C₁₂ alkenyl, C₂-C₁₂ alkynyl, C₁-C₁₂ aminoalkyl, C₁-C₁₂ hydroxyalkyl, phenyl, C₁-C₁₂ haloalkyl, C₁-C₁₂ hydrocarbonoxy, and C₂-C₁₂ halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; m is 1 to about 200; and K is a capping group selected from the group consisting of



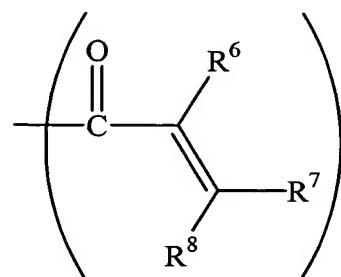
wherein R^5 is $\text{C}_1\text{-C}_{12}$ alkyl; $\text{R}^6\text{-R}^8$ are each independently selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_{18}$ hydrocarbyl, $\text{C}_2\text{-C}_{18}$ hydrocarbyloxycarbonyl, nitrile, formyl, carboxylate, imide, and thiocarboxylate; $\text{R}^9\text{-R}^{13}$ are each independently selected from the group consisting of hydrogen, halogen, $\text{C}_1\text{-C}_{12}$ alkyl, hydroxy, and amino; and wherein Y is a divalent group selected from the group consisting of



wherein R^{14} and R^{15} are each independently selected from the group consisting of hydrogen and $\text{C}_1\text{-C}_{12}$ alkyl.

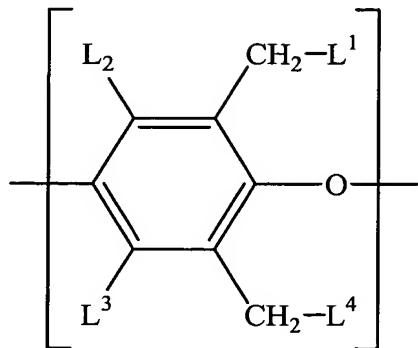
3. The composition of Claim 2, wherein Q is the residuum of a monohydric phenol.

4. The composition of Claim 2, wherein the capped poly(arylene ether) comprises at least one capping group having the structure

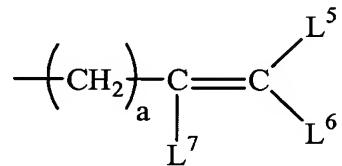


R⁶-R⁸ are each independently selected from the group consisting of hydrogen, C₁-C₁₈ hydrocarbyl, C₂-C₁₈ hydrocarbyloxycarbonyl, nitrile, formyl, carboxylate, imidate, and thiocarboxylate.

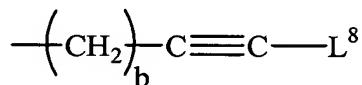
5. The composition of Claim 1, wherein the functionalized poly(arylene ether) is a ring-functionalized poly(arylene ether) comprising repeating structural units having the formula



wherein each L¹-L⁴ is independently hydrogen, an alkenyl group, or an alkynyl group; wherein the alkenyl group is represented by

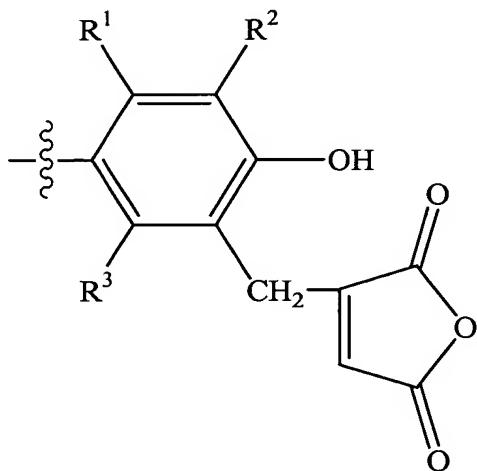


wherein L⁵-L⁷ are independently hydrogen or methyl, and a is an integer from 0 to 4; wherein the alkynyl group is represented by



wherein L⁸ is hydrogen, methyl, or ethyl, and b is an integer from 0 to 4; and wherein about 0.02 mole percent to about 25 mole percent of the total L¹-L⁴ substituents in the ring-functionalized poly(arylene ether) are alkenyl and/or alkynyl groups.

6. The composition of Claim 1, wherein the functionalized poly(arylene ether) is a maleic anhydride-functionalized poly(arylene ether) comprising an end-group having the formula



wherein R¹ and R³ are each independently selected from the group consisting of hydrogen, halogen, primary or secondary C₁-C₁₂ alkyl, C₂-C₁₂ alkenyl, C₂-C₁₂ alkynyl, C₁-C₁₂ aminoalkyl, C₁-C₁₂ hydroxyalkyl, phenyl, C₁-C₁₂ haloalkyl, C₁-C₁₂ hydrocarbonoxy, and C₂-C₁₂ halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and R2 is selected from the group consisting of hydrogen, halogen, primary or secondary C₁-C₁₂ alkyl, C₂-C₁₂ alkenyl, C₂-C₁₂ alkynyl, C₁-C₁₂ aminoalkyl, C₁-C₁₂ hydroxyalkyl, phenyl, C₁-C₁₂ haloalkyl, C₁-C₁₂ hydrocarbonoxy, and C₂-C₁₂ halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms.

7. The composition of Claim 1, wherein the functionalized poly(arylene ether) has an intrinsic viscosity less than or equal to 0.30 deciliters per gram measured in chloroform at 25°C.

8. The composition of Claim 1, comprising about 25 to about 95 parts by weight of the functionalized poly(arylene ether) per 100 parts by weight total of the functionalized poly(arylene ether) and the olefin-alkyl (meth)acrylate copolymer.

9. The composition of Claim 1, wherein the olefin-alkyl (meth)acrylate copolymer is the polymerization product of (a) an olefin selected from ethylene and C₃-C₈ α -olefins, and (b) an alkyl (meth)acrylate, wherein the alkyl is C₁-C₈ alkyl and (meth)acrylate signifies either acrylate or methacrylate.

10. The composition of Claim 9, wherein the olefin-alkyl (meth)acrylate copolymer is the polymerization product of about 60 to about 95 weight percent of the olefin and about 5 to about 40 weight percent of the alkyl (meth)acrylate.

11. The composition of Claim 9, wherein the olefin is selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene, 1-heptene, 1-octene, and 4-methyl-1-pentene.

12. The composition of Claim 9, wherein the alkyl group is selected from methyl, ethyl, propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, n-octyl.

13. The composition of Claim 1, wherein the olefin-alkyl (meth)acrylate copolymer is selected from the group consisting of ethylene-methyl acrylate copolymer, ethylene-ethyl acrylate copolymer, ethylene-methyl methacrylate copolymer, and ethylene-ethyl methacrylate copolymer.

14. The composition of Claim 1, wherein the olefin-alkyl (meth)acrylate copolymer is ethylene-methyl acrylate copolymer.

15. The composition of Claim 1, wherein the olefin-alkyl (meth)acrylate copolymer has a calculated solubility parameter of at least 8.75 J^{1/2}/cm^{3/2}.

16. The composition of Claim 1, comprising about 5 to about 75 parts by weight of the olefin-alkyl (meth)acrylate copolymer per 100 parts by weight total of the functionalized poly(arylene ether) and the olefin-alkyl (meth)acrylate copolymer.

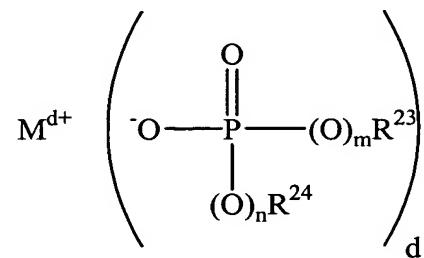
17. The composition of Claim 1, further comprising an impact modifier.

18. The composition of Claim 17, wherein the impact modifier is a block copolymer of an alkenyl aromatic compound and a conjugated diene.

19. The composition of Claim 17, comprising about 0.1 to about 30 parts by weight of the impact modifier per 100 parts by weight for the total of the functionalized poly(arylene ether) and the olefin-alkyl (meth)acrylate copolymer

20. The composition of Claim 1, further comprising a flame retardant.

21. The composition of Claim 20, wherein the flame retardant is a metallophosphorous flame retardant having the formula



wherein M is Al or Zn, d is 3 for Al or 2 for Zn, each occurrence of R^{23} and R^{24} is independently C₁-C₁₈ hydrocarbyl; and each occurrence of m and n is 0 or 1.

22. The composition of Claim 1, further comprising an additive selected from the group consisting of dyes, pigments, colorants, mineral fillers, reinforcing agents, antioxidants, heat stabilizers, light stabilizers, plasticizers, lubricants, flow modifiers, drip retardants, antiblocking agents, antistatic agents, processing aids, and combinations thereof.

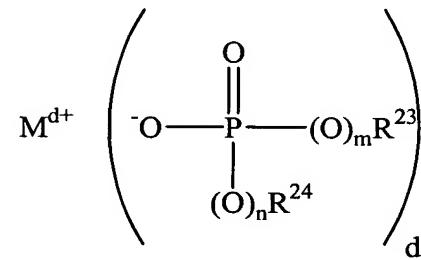
23. The composition of Claim 1, wherein the composition after molding has a UL-94 flammability rating of V-1 or V-0.

24. The composition of Claim 1, wherein the composition after molding has a tensile strength at maximum load of at least 1 megapascal, measured at 25°C according to ASTM D638.

25. The composition of Claim 1, wherein the composition after molding has a tensile elongation at break of at least 40 percent, measured at 25°C according to ASTM D638.

26. The composition of Claim 1, wherein the composition after molding has a tensile strength at maximum load of at least 3 megapascal, measured at 25°C according to ASTM D638, and a tensile elongation at break of at least 40 percent, measured at 25°C according to ASTM D638.
27. A composition, comprising:
 - a capped poly(arylene ether);
 - an olefin-alkyl (meth)acrylate copolymer;
 - a copolymer of an alkenyl aromatic compound and a conjugated diene;and
 - a halogen-free flame retardant.
28. A composition, comprising:
 - about 25 to about 95 parts by weight of a methacrylate-capped poly(arylene ether);
 - about 5 to about 75 parts by weight of an ethylene-methyl acrylate copolymer;
 - about 5 to about 20 parts by weight of a copolymer of an alkenyl aromatic compound and a conjugated diene; and
 - about 0.5 to about 30 parts by weight of a halogen-free flame retardant;wherein all parts by weight are based on 100 parts by weight total of the methacrylate-capped poly(arylene ether) and the ethylene-methyl acrylate copolymer.
29. A composition, comprising the reaction product of
 - a functionalized poly(arylene ether); and
 - an olefin-alkyl (meth)acrylate copolymer.
30. A method of preparing a composition, comprising: blending a functionalized poly(arylene ether) and an olefin-alkyl acrylate copolymer to form an intimate blend.

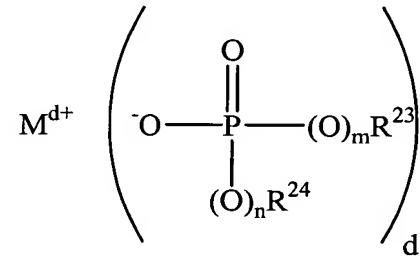
31. An article comprising the composition of Claim 1.
32. An article comprising the composition of Claim 1.
33. A composition, comprising:
 - a poly(arylene ether);
 - an olefin-alkyl (meth)acrylate copolymer; and
 - a metallophosphorous flame retardant having the formula



wherein M is Al or Zn, d is 3 for Al or 2 for Zn, each occurrence of R^{23} and R^{24} is independently C₁-C₁₈ hydrocarbyl; and each occurrence of m and n is 0 or 1.

34. A composition comprising the reaction product of:

- a poly(arylene ether);
- an olefin-alkyl (meth)acrylate copolymer; and
- a metallophosphorous flame retardant having the formula



wherein M is Al or Zn, d is 3 for Al or 2 for Zn, each occurrence of R^{23} and R^{24} is independently C_1-C_{18} hydrocarbyl; and each occurrence of m and n is 0 or 1.

35. An article comprising the composition of Claim 33.

36. An article comprising the composition of Claim 34.